

Resource Summary Report

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Go game as metaphor of cancer metastasis

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Protocol Information

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Summary: This work aims for modeling and simulating the metastasis of cancer, via the analogy between the cancer process and the board game Go. In the game of Go, black stones that play first could correspond to a metaphor of the birth, growth, and metastasis of cancer. Moreover, playing white stones on the second turn could correspond the inhibition of cancer invasion. Mathematical modeling and algorithmic simulation of Go may, therefore, benefit the efforts to deploy therapies to surpass cancer illness by providing insight into the cellular growth and expansion over a tissue area. We use the Ising Hamiltonian, that models the energy exchange in interacting particles, for modeling the cancer dynamics. Parameters in the energy function refer the biochemical elements that induce cancer birth, growth, and metastasis; as well as the biochemical immune system process of defense.

Associated Publications: Barradas-Bautista D, Alvarado-Mentado M, Agostino M, Cocho G (2018) Cancer growth and metastasis as a metaphor of Go gaming: An Ising model approach. PLoS ONE 13(5): e0195654. doi: [10.1371/journal.pone.0195654](https://doi.org/10.1371/journal.pone.0195654)

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